

Illinois, Iowa & Missouri

May 13 - June 14.

✓ 1966

875
72
019

①

May 12

Arrived Iowa City about 10 AM. Told
 to noon. After lunch Bill Furnish

took us to two collecting places
 near Iowa City

329 -

661 - Paley Cr. on Day Creek, NW 1/4
 31-54 N-8W, 1/2 mile west 1/4 mile S
 of bridge over Creek, Linn County, Iowa

This is a locality for *Strobilomyces*
 which occurs 3-4 feet below the
 Coralville which is exposed in the
 middle of the stream. Our collection
 came from about 3 feet below the
 Coralville.

329a

662 - Quarry at bend of road, on
 Rapid R, SE 1/4 SE 1/4 30-80 N-5W,
 2 miles NE of Iowa City, Newport Sp.
 to Linn Co., Iowa. Same as
 previous. Collection in Pentamerella
 zone of Rapid member. Corals
 forming a massive ledge some
 8-10' below the Coralville. Brachi-
 opods in shale beds 4 or 5' below the
 Coralville.

329 b

663 - River Products Quarry - about
 upper 20' of Rapid overlain by Coral-
 ville. Collection in Pentamerella
 beds. The shaly part in lower 1/2 of
 Rapid. NW 1/4 33; Penn tp. 80 N-6W

329c

663a Waterloosees - same quarry

②
323a-664 - State Qy beds - Old quarry
now on branch of Reservoir
Coarse light gray to cream colored
calcareous and shell breccia with
some crinoidal debris. Brachiopods
common in lower part. Small
Pteropoda most abundant. Saw
no Pugnoides SW 1/4 5-80 N-6W
Newport Tp.

330a-665 - Spillway of dam of MacBrude
Lake - Mainly dolomite probably
near top. SW 1/4 29-81 N-6W.
Big Grove Tp.

330b-666 - Quarry 3 miles W + about
1 mile S of Paralta SW 1/4 6-
Linn Tp. Linn Co., 83 N-5W, Iowa

362a-667 - 0.3 mi W of Middle Amana
on St 220.

May 14.

344a-668 - Qy NW of Anasquan with
Rensselaeria.

352-669 - Quarry on U.S. 20, about 0.7 mile
E of Jessup S center 33, Perry Tp.,
89 N-10 W. 0.7 mile E Junction Co
Hy. T. & U.S. 20. Picture taken.

(3)

May 16

6610 = Quarry on N side of 382, at west
325 edge of Bolon - Quarry about 10' high
but about 50 to 60 yards west
of wall on long slope appears
breccia and under the breccia
brown vuggy dolomite marking
the base of the Bolon. About 6 or
7' of Bolon with *independensis*
to base of quarry and $5\frac{1}{2}$ - 6'
of same in quarry wall. *Dypidula*
throughout. *S. occidentalis*
throughout. *Independensis* zone
yellowish or buff gray, nodular
to shaly beds contain hard
knobs of limestone often with
fossils. Corals rare and scattered.
Wapacumicon present in red
ditch. Our fossils are all from
the *Independensis* zone.

Rocks dip to north at low
angle showing higher beds at that
side of the quarry. At top *Independensis*
zone comes a layer with small
Aptophyllum, etc. The upper beds
are *Profundum* zone. There can be
only about 4 or 5' of it. The
middle of the quarry but the
quarry floor 20 yds (at north
end) is probably *Profundum*,
which is therefore probably 8-10'
Thick, more massive & less

(4)

shaly than the independence zone. Quarry is 0.2 mile W of junction of Hy 1 and 382.

Loc. 6611 = Ag on Ia¹ 0.8 mi N of Ely, Ia.
342

Section at S end of Ag

A. - Covered 3'

15' D B. - blue gray breccia 4'. Upper surface irregular with small channels.

4 1/2' C C. At base 2" to a foot of yellow gray or buff dolomite with one or 2" of coarse sand & pebbles up to 1/2". Above the sand

4' B are 4' of brown unfossiliferous dolomite. Pocket of green shale collected. Upper surface irregular.

3' A

D. Solon - All independence zone 15'. Well fractured limestone. The Solon overlaps the bed C to north in about 80' from the south wall along the East wall. Breakfast
Thickness of Solon on E wall near north end. Is much fractured light blue gray. Contained also Hypothyridina but they were poor.

5

May 17

Buffalo Farm -

347a = 6612 - NW 1/4 NE 1/4 12-96 N - 18 W,

2nd Actus shale

D

A - chert, rough massive buff dolomite 6'

1st Actus

B - Light blue grey shale 9'

Massing dolomite

C = 6612

C - Heavy bedded dolomite with *Platyrachella* westensis zone 5-6'

Shale 9'

B

D - Heavy bedded *Stromatopora* beds. Sheet-like *Stromatopora* 10-12' 2 beds with 3 or 4' of shale between, all Nova

Massive chert, rough dolomite 6'

6'

Bryophoceras zone of basal Rock House in Creek

Clams taken Ca 3' 6613 = 347b

See P 6 of Guide book

Top of Massing City in Creek with coral heads

⑥
347c 6614 - About 3' above
base of Mason City
Williams Qy., NW SW 28-
96 N-18 W, SE of Nora Springs

347d=6615 - Hy D, bridge Wamabago
River SW edge of Rockford
SW 1/4 NW 1/4 15 & 95 N-18 W, Floyd
Co., Iowa - *ulsterensis* zone of
Rock Grove member. Top of Nora
Pachystrophia phylum from Mason City

347e=6616 - SW SW 28-96 N-18 W
E. Bank Shell rock River.
Upper part Mason City.
Stromotoma zone at bottom. 2 *Stromotoma*
collected

347f 6617 - Uppermost 2' of Mason
City, in stream NE 1/4 SW 1/4
28-96 N-18 W, just N of
Williams Quarry.

347g=6618 - Under bridge on old Mason City Rd
in Nora Springs - About 50' up in
Mason City, *Stromotoma* - *Pachystrophia*
phylum zone. SW 1/4 SE 1/4 47-96 N-18 W.

347h 6619 - Top of Mason City, at
dam in Nora Springs

⑦

May 18

347i 6620 - *Cyrtospira* - Lincoln Mill
Site on north bank Winnebago,
SWNE 15 - 97 N - 21 W; Cerro Gordo Co.
Mora (basal). Section on River
bank, knobby limestone with occasional
corals. N of Mason City.

347j = 6621 - Upper bed of 1st
Actinostroma zone of Mora, on W bank
Shell Rock River, SE 1/4 NW 1/4 1 -
96 N - 19 W,

347k = 6622 - *Amphipora* zone
NW 1/4 SE 1/4 27 - 97 N - 19 W, west
side Shell Rock R. Rock Grove Mn.

347l = 6623 - Along rd NW NE 35 -
99 N - 20 W, Worth County
1st *Actinostroma* zone of Mora
2 miles E of US 65 east of Keosauqua

347m = 6624 - Shell Rock River, 0.4 mile
N of bridge on US 18, NW 1/4 SE 1/4 7 -
96 N - 18 W, Floyd Co., Iowa.

8

May 19

Bridge over Winnebago River
5.3 on Floyd Co. D
Entrance to tile yard - 6.2
Road Cut upper Cerro Gordo
6.5
Upper Cerro Gordo Cut over fence
7.3

363a-6625 - Tile yard

363b-6626 - 1.2 mile by road W of bridge

363c-6627 - 2 miles on Co. D west of bridge

363d-6628 - Near top of hill in road
cut about $\frac{1}{4}$ mile S of S bend
of Co. D at S bend.

363e 6629 - Rd cut at Bond Hill. Highway
dept has destroyed the old
locality by cutting the road back.

Ted Johnson & Don Cox helped
us find places around Mason
City.

363f

(9)

6630 - Owen ls. Heavy bedded limestone or dolomite

A - Massive blue ls weathering brown with abundant *Stromatopora* helter-skelter in rock 6'

4'

2'

3'

B - 3' of blue brown weathering dolomite with impressions of *Cyrtospira*

Partly covered 6'

C - about 2' same lithology but finely broken stroms and occasional *Pachyphyllum*.

D - about 4' soft weathered gummy shale.

Near center W line of SW $\frac{1}{4}$ 3-94N-20W, Ceno. Gordo Co., Ia.

363g =

6631 - SW cor. 10-93N-20W on US 65 0.9 mile S of Sheffield Ia 0.9 mi. Sheffield shale - 2 sacks taken.

(10)

335b

May 20

Iowa farm Roll 2, color F7, F8
just W of Mason City, W side US 65

6632 - Abandoned by on N side
US 20 1/2 mile E of intersection
with Iowa 150, E edge of
Independence sh.

Small quarry showing about
3-4 feet of Independence zone
and about 10' of profundum zone.
Large *Atrypa* abundant, *Spiridula*
very rare.

Small channel of probable
Independence shale. = loc 6633 =
335d

6634 - Large quarry exactly 1 mile
on US 20 east of its junction
with Ia 150, on south side
of road.

Section has Davenport, and
Solon with a thin Independence
zone and possibly 10' of profundum
zone.

Called on Mr. Leverson in
morning.

6635 coal from sink in
6634.

335c - 6632a - Same as 6632 but

335e

from the profundum zone -
base of this zone with many
Cystodonta

(11)

May 21

333a- 6636 - Nichols Farm Qy, 2 miles NE of Vinton - Rensselaeria beds N side of Quarry in lower part of Profunda zone

333b- 6636a - Vinton Qy. but beds in and between Rensselaeria beds

333= 6636b - Beds with independencies

On N side quarry in a small pit independ. zone makes floor and about 1 1/2' above. Has only independencies in it. Over this occurs Rens zone beds. Also found Rens. in beds that seem to be just with or under independ. and over the Rens. beds come granular layers with large Sp. and Sp. and a large Schizophoria. This suggests independ. zone but it does not have independ.

333d 6636e - Rens. with independencies
6636c Same Qy but with ^{out} independ.

333c 6636d " but Sp. iowensis beds

334a 6637 - N from Center Point on Iowa 150, 2 miles from Washington St, to Linn Co 55, 0.2 mile out 55 to Linn Co. 112, .015 mile to small pit & road cut

Prof. zone

(12)

May 22

340a 6639 - Bellula zone ^{By} 100 yds E
of bridge over Cedar R on Urbana-
Shelbyburg road.

344b = 6640 Independence zone
344b' = 6640a Lower Rensselaeria
344b'' = 6640b Up. Profundum zone

By on W side of small creek
center W side SE 1/4 21-88 N-8W,
about 2 miles NW of Oquawaton,
Buchanan Co., Iowa

10-20' of Independence zone in
lower part and about 20' of
Profundum zone. Latter well
exposed. Rensselaeria appears
with *Cystiphyllum* just above
the Independence zone.

335f = 6641 Road cut NW 1/4 28-88 N
-8W, Liberty Tp., 0.5 mile west
of bridge over Pine Creek.

f' = 6641 - Independence

f'' = 6641a - Profundum

About 5' of upper Independence zone
and about 10' of profundum zone.
Rensselaeria low, just above indep.
zone. *Hypothyridina* about 4' ^{below} Profundum zone.

(13) Independence shale
6642 - Do south in Brandon
on westernmost street, for 2 miles
exactly, then turn west to end of
road just off turn of road. I
351a Parks; Follow brook to river.
275' or 110 paces south of point
where brook flows into river is
Independence in a funnel-like
depression in the Independence
zone of the Solon Member.

14

May 23

358 = 6643 Linwood quarry on state
one mile E of Buffalo, Iowa

358a 6643a - Top bed of active quarry

358b 6643b - *Athyrid* beds

358c 6643c - upper beds with
Schizophoria

Travelled from Independence Ia
to Hannibal, Mo.

May 24

384a = 6644 - 500 feet (225 paces) up lateral
gully shaly ls with numerous *Spinifers*
Continuous exposure up to 400 paces
with *Spinifer* all the way.

80 paces up side gully, poorly bedded
massive ls. columnar in knotty hard
ls.

80 - 128 paces = $5\frac{1}{2}$ vertical same massive
ls. but with poor smalls.

15
384 B

Section at end of bluff 6645

A - buff micaceous bedded massive ss or dolomite

B - gray smooth ls 1' - 1 1/2' under this along bluff comes about 1' or 2' of thin bedded material.

C. bluish ls., The lower 3' bounding in Spirifer & Atrypa. The upper part yellow weathering & without fossils

D. - 15' hard massive, with calcite rods - smooth gray in fracture - no fossils seen

B

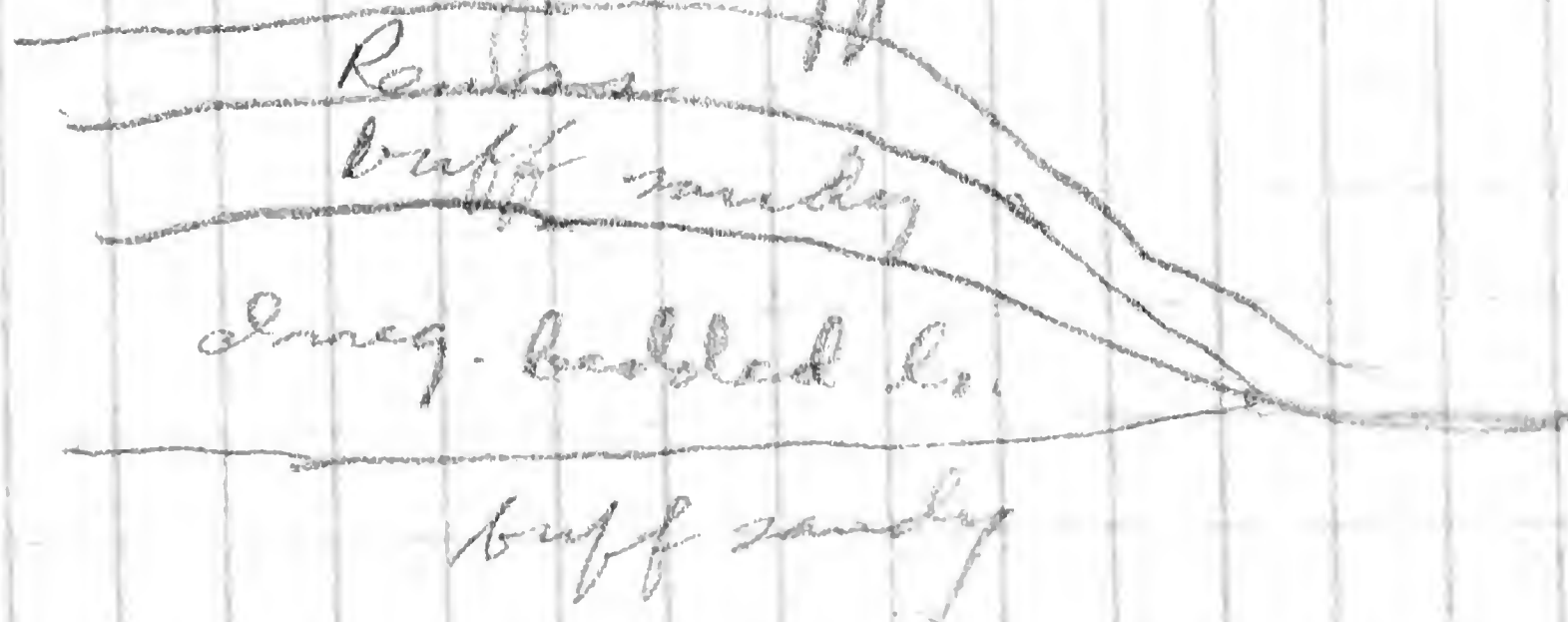
E - covered, probably same as D. - 8' hard massive ls. breaking into irregular lumps - no fossils seen. This forms top of bluff.

A



384 C

6646 upstream from 6645 - hard lumpy irregular ls in creek a lump produces Atrypa, Strophodontia Spirifer & a large Favosites. Face of bluff at 6646



116

6646

A. - mostly hard, irregularly fracturing ls. containing occasional shells 3'

15' F

B - irregularly fracturing hard ls. with hard smooth knots 6 1/2'

22' E

C - fine-grained as of dolomite smooth conchoidal fracture. 3-4'

4' D

3-4' C

D - Finely granular irregularly splitting limestone abounding in *Rensselaeria* and *Atrypa*

6 1/2' B

3' A

E - 20' mostly covered but with about 6-8' of yellowish mottled "sandy" dolomitic stone.

F - high bluff of massive irregularly fracturing ls. forming a high cliff

384d

6647

— in roadside on hill slope layers of *Stromatopora* in soft yellowish "dolomite". This overlies slabby "sandy" dolomite.

17
384e

6648- Mound of crinoidal and granular debris surrounded E, W and S by usual type of rock seen here, i.e. the same as the granular lumps. ls. 1250 paces downstream from old barn on N side of creek NW corner 14-56N-6W, Rensselaer 7 1/2' sheet, Missouri

384f=

6649- Slabby limestone in layers 4-5" thick with *Mejostocrinus* NW cor NW 1/4 15-56W-6W, Rensselaer 7 1/2' □, Mo.

A remarkable feature at 6646 is the wrapping of the *Rensselandia* beds from the creek bed over the fine grained blocky fractured ls. This suggests that *Rensselandia* beds are lenses sands banded over hard layers. It also suggests that they are likely to be spasmodic in occurrence.

18

May 25

Central Stone Co. Quarry has 16' of "Callaway" overlying Kimmswick limestone which is the quarry rock.

W $\frac{1}{2}$ sect II

About $\frac{1}{4}$ mile above bridge and going upstream about 1'. platy dove limestone

310 paces about 5-6' of rock exposed for 160 paces. 40 paces still further upstream 4' more are exposed. First five feet hard nodular gray, smooth ls. Small waterfall over blocky, pitted brown gray rock heavy bedded making a thick ledge. Thus the end of the outcrop is at 500 paces. Here are 3' of hard brown nodular massive but no fossils.

500-864 covered

814 - 1' of nodular pitted, hard ls.

814-920

865 - About 3' shaly ls. At 885

This is capped by 2-3' rotted brown, fine dolomitic sand.

At 920 are about 5' of This punky rock which when fresh is hard shaly ls. Top of hard bed below punky bed has branching stromatolites.

Punky ls. } 5'
Hard ls. } 3'

19

1130 - Punky beds at stream level

1400 - Same punky beds in small patches

1600 - begins exposures shaly ls.

1760 - About 5' mostly hard massive limestone b/t some shaly. One poor snail.

1820 - About 8' of rock exposed in bank

2060 to bridge where there is brown ls.

6650 Exposures on HH for 2 miles east of junction with H. All are Kimmerich but at 6650 is a foot of coarse ss that might be basal Devonian.

6651 - About 8-10' of platy brown ls.

6652 - About 5' of sandy brown stone with a trypa, Spinger, possible Renss. Has lithology & irregular bedding of Renss.

6653 - Bluff with 60' of Devonian

6654 - In road Ordovician with Receptaculites, about 9"-1' of coarse ss and about 5' Devonian ls. brecciated in places, massive irregularly bedded & dove gray. ss about 50 yds S of bridge

20

6653 - Bluff in Cedar Creek consists from bed of creek to top of 60' of Devonian limestone, Hasbany, massive irregular at bottom but becoming platy at top; 12' below top *Cyrtina* 25' from top, corals were *Spirifer* like those at the base of the cliff in section ~~in sec~~ 28.

20

400 B

May 26

Salt Spring Hollow revisited
Numbering as in section of 1942

A - Between Sil dolomite & lowest Devonian is covered interval of 2'. A consists of 1' + a covered interval of about one foot

1 1/2' E = 6659 = 400f

6658 = 400e

9-10'

F

B. starts with limestone like A. I would add two together white chert common at 5' also Schuchertella. Upper 6' with fewer fossils less chert. This shaly ls is earthy gray and weathers yellow.



6657 = 3-5' = 400d

6656 = bottom 2' = 400c

covered hard irregularly bedded ls. = 6655 = large & perfect = 400b

covered gray dolomite

F. 9-10' of hard crinoidal limestone with corals, brachiopods, a Cyrtina That is unbonate. Rock had some yellow sandy debris = 400e

E - Quantity so full of fossils - corals brachiopods all broken apart upper surface with burrows. ls iron stained = 6659

400g = 6660 - Lone Star school revisited
2/ section begins opposite school on
downstream side of dirt road
and stream crossing

A - massive, nodular & cherty
dolomite, porous but heavy 15'
No fossils seen. Bedding irregular
surface. Ropy.

R - 4-5' of limestone, very
massive, fine grained with nodules
of dark calcite. More massive
than below. Very suggestive of
Cooper ls.

C - 30 yards upstream from slab
crossing comes falls over
B. Here at top are black "phosphate"
nodules. Here at the fall the
bank can be climbed up to the
ss bed. Makes the total thickness
23'. Lower 5'± are heavier bedded
than the median part. And the upper
10' are more massive. Is is earthy gray
Large *Spirifer* at bottom.
Cherty near the middle starting
at about five feet. The large
Spirifer is commonest in the
first 5'. *Strophodont* comes
in in first 5'.

1-2' D

6662 = 400i

6661 = 400h

23'

6660 = 400g

5' B

5' A

22
6661

at about 15 up came bed of
Cystiphyllum reminiscent of
Profundum zone and also of
beds at Brussells.

From 3-6' below falls fossils
abundant.

Chert extends to within 4' of
top under ss.

D-hard lmy ss, with many
fossils.

May 27

23.
400j-6663 - Sandstone at top of Lone
Star school section, 3 miles E
of Fieldon

400K 6664 - Uppermost 6' at
NW corner NE $\frac{1}{4}$ SW $\frac{1}{4}$ 16-115-2W, Locality
in wooded ravine east of last
house on road. House located
at angle of road at d in Gilead.

May 28

6665 - Jerseyville Hollow - Top
beds of Eden Valley

Up Duggett Hollow for about
2 miles. Silurian all the way

400-1

Burrows 6666

Roadside just W of bridge $\frac{1}{2}$
mi W of Burrows. Section from
top down

- | | | |
|---|---------------------|---|
| A | 2' | A - light gray shale |
| B | 2 1" | B - Sugary white ss with
Atropa and large Spirifer like
"ionensis". |
| C | 32" | C. - 2 1" inches yellow weathering |
| D | 18" | earthy irregularly bedded ls. with |
| E | 12" | Cystiphyllum, Spiratrupa, Cranaea |
| F | 12" | with color |
| G | 13" | |
| H | 24" | D Limestone bed jammed |
| I | Blue
shaly
ls | with thin Cystiphyllum |
- 6666d

24

E - 18" earthy ls jammed with *Cystiphyllum*

F - 12" Earthy blue, yellow weathering ls with *Atypa* & chert.

G. - Earthy ls. packed with *Cystiphyllum*¹³

6666H H - 24" of blue earthy yellow weathering ls. with some scattered *Cystiphyllum* Phosphate nodules

I = *Maquoketa*

Excellent exposure of the Devonian now opened on the road just across bridge on Lincoln Co. by Y about 1/2 mile W of Brussels. Exposures also in Creek. On N side of road is *Maquoketa* and on south side of road is complete section of Devonian with gray shale above it. a total of 12', ten feet of the ls and about 2' of ss. The ss is irregular in thickness and may not be present everywhere because we did not see it in the Creek section. *Spinatypa* is fairly common in the upper part of the section but small *Cystiphyllum* is the most conspicuous element.

25

Collections

400 n = 6666 B - top ss.

400 m = 6666 C = next lower bed with abundant fossils

400 - 1 6666 D = Hard *Cyrtophyllum* bed

May 29

SE 1/4 SE 1/4 21-47N-5W,

Section on Mo '19, 1.25 miles N of Big Spring

A - light gray dolomite with flattish bedding = Jeff City

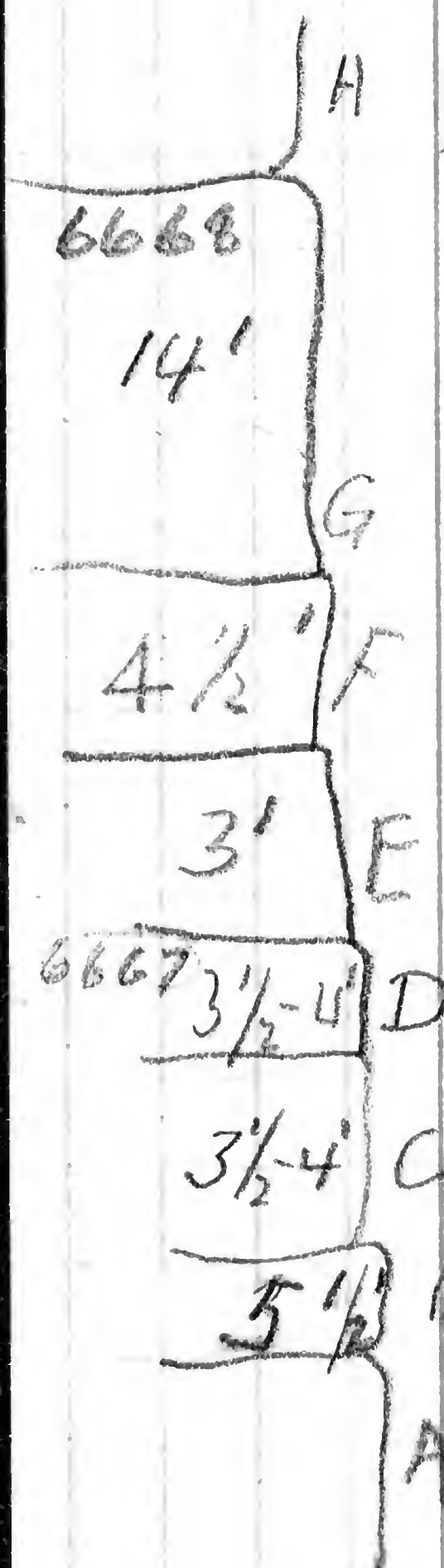
B - 5' irregularly bedded earthy brown ls, granular, with *Echinoderm* debris

C - pinkish to white crinoidal limestone, cross-bedded, 3 1/2' - 4'

D - Fine grained calcarenite with numerous small cupped *Hexagonaria* = 6667. Dark gray in fracture - contrasts with C in color 3 1/2' - 4'

E - About 3' dark gray weathering but light gray finely granular ls. with scattered crinoid stems

F - 3 1/2' creamy white, crinoidal limestone to pinkish with many



6667 = 384 h

26

small crinoid particles

G- comes at curve in road and gap in section. A level sight indicates that bottom of section on N side of curve is at very top of F without a significant gap. At top of G is 6" bed with many small corals - may be float. On north side curve lowest rock is dark gray biohermal ls. with some brecciated material - with fossils but impossible to get out of fresh rock.

Just 5' from top is a thin ss 1 to 5" thick.

Top overlain by Snyder Creek shale. Upper surface pitted & with lunate nodules, suggesting pyrite.

384i = 6668 - specimens from top 2-3'.

384j = 6669 - " throughout G by Tom H - Snyder Creek 6670 = 384k.

This section is 1/4 miles N of Big Spring and 0.9 mile N of junction with Co. J.

(27)

Section on County highway J
(Montgomery Co.), 3.25 miles south
of Mineola, line between NE cor 15 and
NW cor 14 - 47 N - 6 W.

A - platy dolomite

B - 15" - 3' sandy limestone with
fish fragments, irregular surface
on bottom. *Thrinacoselasma* & *Thrinacoselasma*

C - 6 feet of drab earthy weathering
buff gray limestone with white
chert. *Spirifer*, few fossils

D - 2' Buff gray, granular limestone
with some chert. *Athyris*
occidentalis type = 6673

E - 6' cream granular ls.
much crinoidal debris

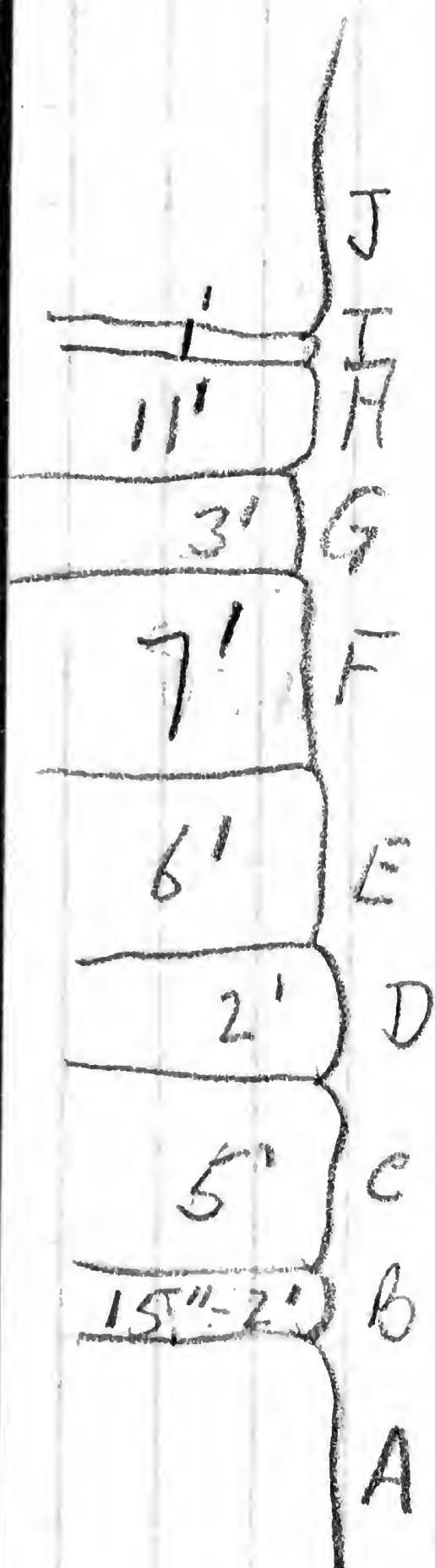
F - 7' thin bedded crinoidal
ls. fine grained biohermal
in upper 3'

G - About 3' of biohermal
ls. with large crinoids, *Athyris*

H - Covered

I - Top of Callaway - a
regular spaghetti of digitate
corals & sponges.

J - Snyder Creek shale



(28)

384-2 6671 - Bed B. - lower part upper
Callaway

384m 6672 - Very top of Callaway

384m 6673 - Slabby beds from bed F
Picture taken.

SW $\frac{1}{4}$ SE $\frac{1}{4}$ 29-48N-6W.

On old & new US 40, 1.9 miles
west of Micola, measured on old 40=
C H N. At east end of cut some 15'
Ordovician light colored
crudely laminated ls.

Contact irregular, small black
lumps at base of Devonian
and small shaly lumps.

Devonian confused as to
lithology ranges from coarsely
crinoid to fine grained limy
ss or limestone. Color varied
from cream to orange & brown.

Brown masses usually fine
grained. Corals common usually
small but some colonial, a
large-cupped *Hepagonaria*.

Bedding of Devonian highly irregular

Drabish drab shale appears
to occupy cavities in the Devonian

(29)

Near west end of cut orange
brown earthy limestone
contains small *Cystiphyllum*
and reminds strongly of the
Cystiphyllum beds near at
Burnsells Mo.

384o

6674 - gray shale from "sink"

384p

6675 - *Atrypa* bed at top of
section - 1-2' / packed with small
Atrypa (local)

384q

6676 - *Crinoids* scattered

384r

6677 - *Phillipsastraea* from brown
beds

384s

6678 - *Cystiphyllum* beds near
base

384t = 6679 Roadside exposure
one mile N of Old US 40
junction with Co R on
County Hy N., between
Mineola and Williamsburg.
NW 1/4 SW 1/4 NW 1/4 29-48N-6W

(30)

May 30

6680 Bellama Springs

Lowest beds exposed are Ordovician. Coming up hill top beds exposed are about 1-1 1/2' of irregularly bedded ss. This overlies green shale & thin bedded limestone. The ss may be the beginning of the Dav. but I saw no fossils.

A - Ord. green shale in thin bands & thin-bedded ls.

B - irregularly bedded brown ss. 1 1/2'

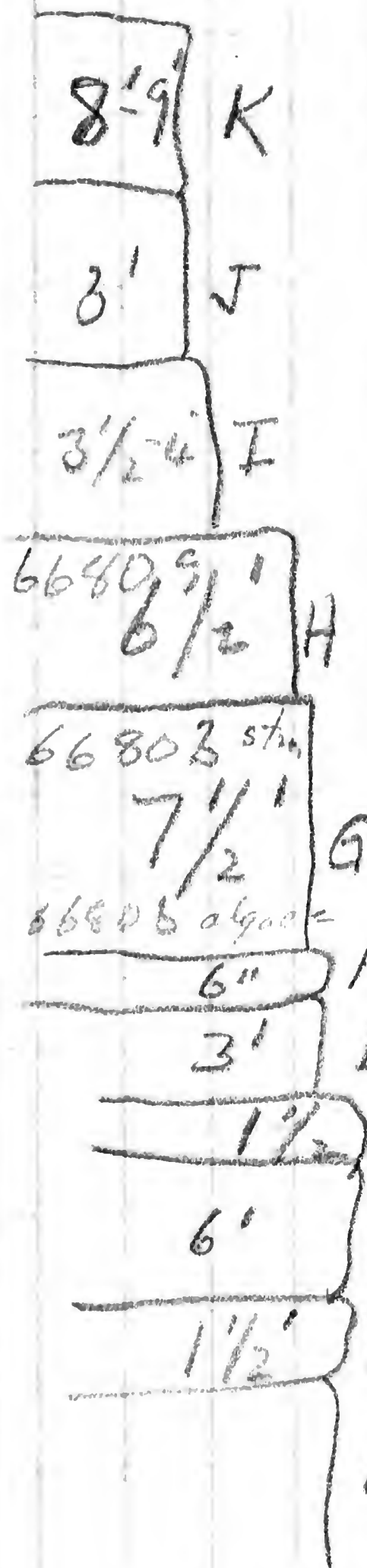
C - Covered 6'

D - Lowest bed of Devonian in ditch is dove gray to light gray smooth grained ls. with 4-6" sand on top. Total 18"

E - 3' earthy, hard massive brownish gray ls weathering yellow. Very fine grained - small calcite masses. A few scattered corals at top.

F - 6" contorted shaly weathering rock with cystiphyllum = 66801a and stromatopora. 6680a = 384u

G - 7 1/2 feet of hard massive ls. The bottom 5 feet gray granular but rather fine grained. The upper 2 1/2' earthy weathering and containing some sand.



(3)

Bottom bed of 2-2 1/2' is packed with corals and spaghetti like algae. Top has moderately large Stroms.

H- 6 1/2' - lower 5' dark gray fine grained granular ls. packed with corals, especially Hexagonaria which occur better sheltered. Top foot and a half with few corals but strongly crinoidal. Top 3-4 inches very sandy.
6680C = 384W

6680f

I 3 1/2 - 4' in 2 ^{equal} layers separated by 4 or 5" of shaly rock all characterized by a great abundance of Atypa and occasional Strophodonts. Middle seam of shale = 6680D. = 384X

J - 3' in 2 equal beds with shale parting & abundant in cups corals (strongly centrally tabulate) and large Strophodonts

K - 7' biotramal limestone, a mass of fist-size Stroms and small Stroms the size of a pencil in diameter. Upper foot or two at top with few Stroms
6680E. = 384y

33

H - 3 1/2' nodular and earthy ls. weathers light brown.

I - One foot bed abounding in *Atrypa*. = 6681 I

J - 5 1/2' in 6 beds, the upper ones with shaly partings - *Strophodonts*. The uppermost bed is a foot thick and has scattered cup corals, large *Schizophoria*. *Atrypa* Coll. of *Stroph* = 6681 J = 375 B

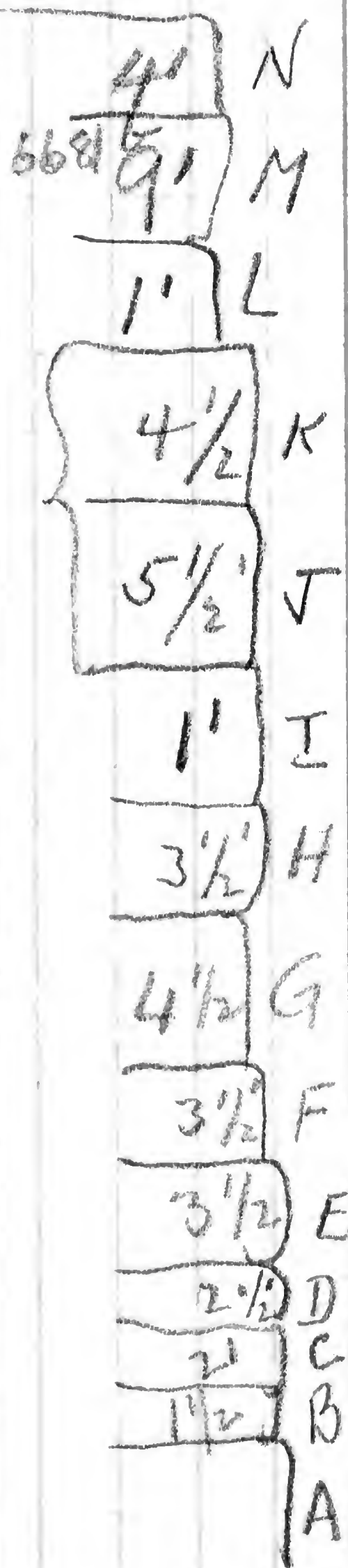
K - Thinner bedded with some shaly partings. Scattered cup corals. digitate stroms abundant in top 2 feet - This could probably be combined with J to make 10' unit. Top bed 6" black shaly ls with *Strophodonts*

L - 1 foot smooth gray-black ls hard, conspicuous and containing *Strophodonts*

M - hard massive dark gray ls. with cup corals abundant in lower 3'. Bed 6' thick. Upper part with digitate stroms and uppermost 2' with large stroms 6681, b = 375 C

N - Top of very light gray massive ls with spaghetti at base & few stroms & large snails at top.

46'



(34)

Schizophoria bed

377c-6682 - Upper Snyder Creek, on
Cox Creek SW of Yucatan
SE $\frac{1}{4}$ SW $\frac{1}{4}$ 24-47 N-7W, Fulton \square

375d-6683 - Snyder Creek, on Snyder
Creek, SW $\frac{1}{4}$ 17-46 N-9W, Fulton \square .

(35)
380b - 6684 - Rensselaeria ledge

May 31

Correct Rensselaeria beds south of Ashland to NW $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ 1-45N-12W. I drew it as 11 west but it should be 12.

Visited University of Mo and saw Dr. Freeman who was very kind and helped with localities & loaned books.

Went to large Rensselaeria locality south of Ashland and collected for about 5 hours. To get to this place take road at intersection marked 830 in SW $\frac{1}{4}$ of sec 11-45N-12W. Follow this road to site of Sycamore school. Take old lane beside school up hill for about 0.3-0.4 mile, then go to left across gully. Here Cooper lithology rests on Jeff City dolomite. This is followed by the Rensselaeria beds, 8 or 10' thick.

According to standard there are 45' of beds here. The Rensselaeria is overlain by Cooper lithology SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ 1-45N-12W, Jefferson City \square , Boone Co., Mo.

36

June 1

6685

Lupine

Chouteau } E
6' } D
6" } C
6' } B
Jeff City } A

350' NW on RR and at point of
hill in a large quarry with floor
at about 580'. Just 20' above gy
floor on south side is
dolomite with green shale and
at very top is 2' of flat bedded
dolomite. This is followed by
6' solid hard limy ss, 18" below
top comes Rensselaerian a bed
about 1 foot thick. Upper surface
of ss with sea-weed or tidal
markings

C - 1' sandy shale

D - 4' of dark gray ls with few
fossils

E - Light blue-weathering shaly
ls but contact not clear = Chouteau
Quarry view f 8, f 9 at 1/250

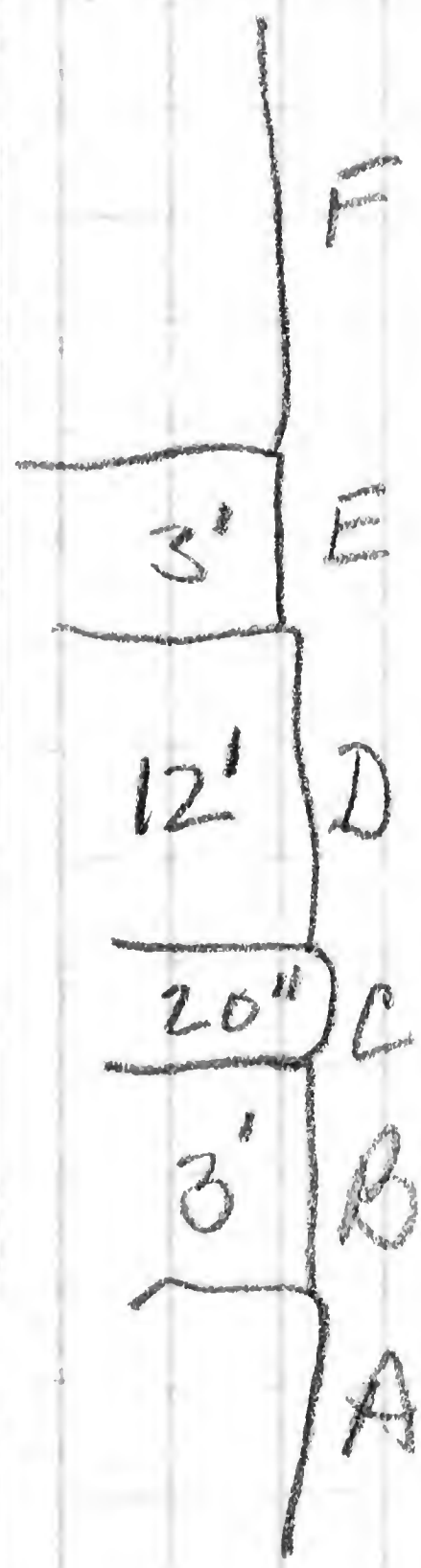
Contact of Callaway + Ord at 600!
Contact of Callaway + Chouteau
difficult to spot

6685a - Chouteau from Quarry

6685 - Quarry in point of Missouri
River bluff, NW 1/4 SW 1/4 NW 1/4 23-
47N, 14W On Missouri Pacific RR, 2 1/2
miles SE of Lupine, Montrose Co., Mo

(37)
381b

6686 - Reentrant in Mo. River bluffs - entered on east side and encountered Ordovician low in the bluff. On east side the Ord is directly overlain by Clinton. We saw no Devonian. A short distance west in another ravine a few inches of ss were seen above the Ord. The ss contained Favosites. The ss lies on flat-bedded dolomite as in quarry. About 5' above the ss is a ledge of 1' of hard gray (dark) ls which looked like Callaway. This immediately followed by Clinton with *Stenodonta*. The Devonian is thus about 6' thick but the identification of all but ss is questionable.



Next gully west has 10' of ss ^{with small pebbles} and about 4' of Devonian lithology overlain by Clinton.

Tracing to bluff looking at the RR about the center of reentrant we have a fair section of Devonian.

- A - Ordovician
- B - 3 feet of limy sandstone in a hard ledge that juts out on the slope.
- C - 20 inches of thin bedded shaly limestone becoming

NE $\frac{1}{4}$ SW $\frac{1}{2}$ SE $\frac{1}{4}$

(38)

less bedded toward top and
all jammed with
Rensselaeria

D is about 12' of sandstone
in one solid mass

E about 3' of dark gray ls.
of Des. lithology

F - Chouteau shaly, light
yellow gray weathering

The limestone is relatively
thick toward the east as the
sandstones thin. Where the sand
is about 7' the limestone above
is about 8' thick

0.7 mile N of road & RR crossing
(RR crossing just E of BM 582)
Locality about 100' north of RR
signal 1490 and directly west
of RR tracks across a small
swampy flat

About two paces N of road
crossing

6686a - Shumakella from
Chouteau at 6686

6686a } On Missouri Pacific RR,
NE cor SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ 15-
47N-14W, 1.95 miles SE of Lupus
in Missouri River Bluffs, Columbia
(15) Quadrangle, Moniteau Co., Mo.

(39)

6687 - in a glen about $\frac{1}{2}$ mile south of road intersection with B.M. near 582. Devonian consists of about $3\frac{1}{2}'$ of limestone breccia followed by $3\frac{1}{4}'$ of hard dark gray limestone which is followed by the Chautau. We saw no ss in place. This is 35'-40' above the tracks. See Columbia \square .

(40)

June 2

6688-

6688a Lowest shale

b Middle - about 2' above a
c Uppermost shale 1' above
b. Represents about 5' of
rock in about midst of cut
2 miles E of New Bloomfield on
bend of road, 10-15' below first
thick limestone up the road, SE $\frac{1}{4}$
33-46 N-10W, Jefferson City O, Mo.

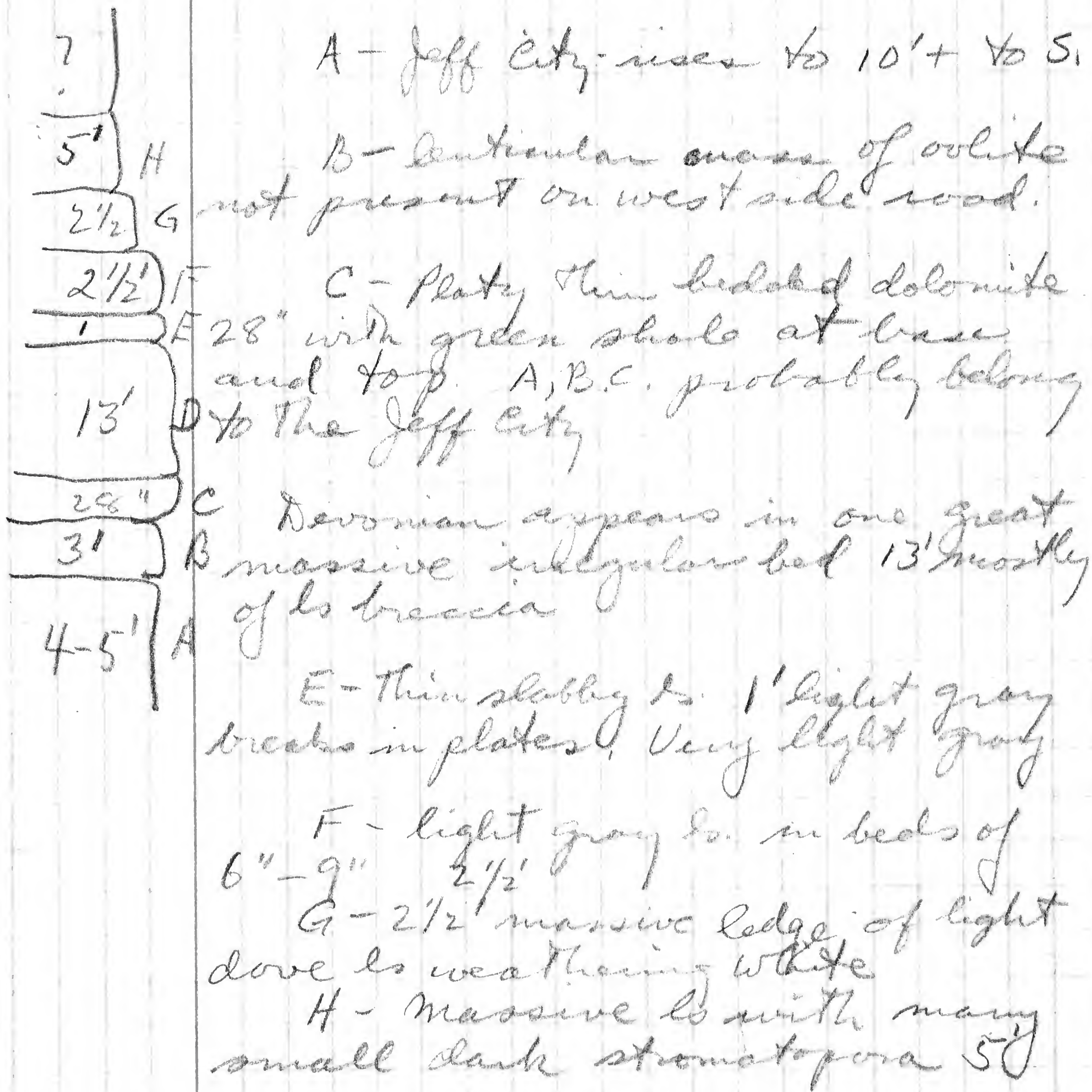
6689 - New section of US 54
cuts off Holt's Summit. Halifax
road, the small jog just S
of Union Hill Church is cut
by US 54 and runs parallel
to the old RR. Two cuts are
still visible, one 0.35 miles
S of junction of US 54 & Halifax Rd
and the second 0.6 mile
south of Halifax Rd. The
latter cut is 1.3 mile S of Holt's
Summit.

SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ 36-45 N-11W,
1.3 miles S of Holt's Summit in
abandoned RR cut parallel to new
US 54. = 6689 = 386

(41)

Cut on US 54, 1.3 miles south of Holtz Summit

Sections on two sides of road are different; The one on the E side is best.



6689a Cut 1 mile on US 54 S of Holtz Summit

(42)

The beds in the cut (RR) where we collect do not appear in the Hy cut but may be on the flank of a big hump. The Hy cut slopes steeply toward the east and probably underlies the fossil beds. Shale at the N end of the RR cut is probably Jeff City.

At the RR cut we have the following section

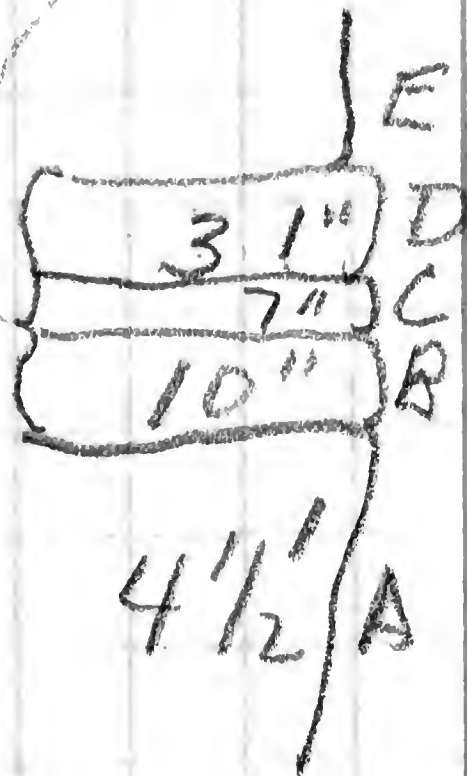
A - massive gray, blocky, fracturing with *Strophodonts* at top. Lithologically variable

B - 10" single band like that below

C - Shaly band hard in middle but soft on top & bottom 7" - a coquina of *Strophodonts* in place

D - Massive limestone with irregular fracture packed with fossils.

E - Shaly ls packed with fossils a probable 2-3' more



5.1 miles on US 63 S of Aldham

43
3800

6690 - junction of A and US 63.

Exp 4 road cut on US 63 -

A - Jeff City

B - Dove calcilutite brown gray 6' brecciated in places.

C - Flumen bedded brown gray calcilutite 2 1/2'

D - Light gray massive calcilutite

5' I = 6690

E - calcilutite with ball-like Favosites and Stromas

7' H

F - bed with breccia of light calcilutite 7 inches

2 1/2' G

7" F

G - bed with large Stromatopora

1 1/2' E

10-12' D

H - Calcilutite bed, massive light gray weathers white. Stromas on top

2 1/4' C

6' B

I Green shale & limestone pieces with Favosites

A

J - shale and thick flat slabby ls. - digitate Favosites seen

Above this J are 10' of massive slabby ls. with crinoidal

(44)

debris - weathers brownish - I suspect This to be Mississippian

At North end of cut dark shales fill joint cracks and sinks. As at Saverton shale. A large cavern on West side road is filled with sandstone

6690 = NW 1/4 24-45N-12W, about 6 1/2 miles NW of Cedar City and 5.1 miles S of junction A + US 63 at Oldham, Jefferson City, Mo. just south of the junction of Clayville road and US 63. 7 miles N of Missouri River bridge

45

Paleont. + Stratig. of the Cedar City fm
(mid tier) of Mo.

George H. Fraunfelder June 1964

June 3

Sent off 6 bags + one box. Total
for trip = 3 boxes, 10 bags.

In bed of creek on east side
of road, $\frac{1}{4}$ mile NE of Esely,
SE cor NE $\frac{1}{4}$ NW $\frac{1}{4}$ 3-47 N-13 W,
Columbia \square , Missouri

A - Covered

B - irregularly bedded shaly
ls, dark brown gray with hard
limy masses that weather into
boulders.

C - brittle shale with
Eosyringothyris 1' = 6691a = 6691

D - Crinoidal, hard ls. also
with *Eosyringothyris*, corals and
trilobites = 6691b. = 380d

E - Hard granular ls. $1\frac{1}{2}'$

F - Hard sandy ls $1\frac{1}{2}'$

6691c = G. Hard impure ls in = 380e
several layers often with a

$1\frac{1}{2}'$

F

$1\frac{1}{2}'$

E

2'

D

1'

C

4'

B

A

(46)

black or brown crust - Laonurus markings. This ls appears in place to be altered to a green shale or clay or the clay may be between the layers.

120 paces upstream from G is Chouteau in the stream bed and in a side gully. = 6691D.

6692 - Quarry at Easley, in Chouteau center sec B-47N-13W, 0.3 mile S of Easley, Columbia Co., Boone Co., Mo.

June 4

Hall + Riley Quarry, west side US 65, 4 miles N of Junction with US 40 = Int 70. = 6693

379a

limestone

A - Thin bedded, papery shaly with black parting. This rock is at adits of 2 tunnels. About 5' thick. Its surface is undulating from hard lumps, mosses in it. Except at tunnel. This forms floor of ad.

B - 12' Smooth dove brown calcite with blocky fracture surface, breaks very irregular.

Jan
Key number
CJ 473

(47)

C - 2 feet of buckly or nearly
lo simply packed with
Rensselaeria - long slender ones
in lower 3/4 but large numerous
types in upper part = 6693 B

D - Dove ls. with nodules
of lime & shale partings - bed
very irregular in thickness
shale seen at top.

E - Dove ls. Dev. or Miss.

Crinoids =
6693 C

Top
6' } E
10' } D
6693 B 2' } C
12' } B
6693 A
5' } A
6' }

Found a pocket of black
shale under the Rensselaeria
bed which close aspect is
Pennsylvanian. Similar black
shale was seen filling
cavities in the Burlington.
I suspect therefore that the
black shale is a cavern
filling occupying any level
in the limestone. Black shale
= 6693 D

(48)

June 5

6694 Old Quarry on N side of
US 50, 0.15 miles west of
junction of US 50 and Mo. 135,
about 2 miles W of Ottewille,
Copper Co., Mo.

A - Coarse friable sandstone
with angular fragments of white
and dark chert

Soil

14'

E

B - Tan to light dove gray
calclutite intricately seamed by
worm borings and falling into little
pieces where rotted - Abundance
of borings is outstanding

4 1/2'

D

C - Light gray calclutite with
scattered borings and pockets of
breccia at top.

7'

C

4'

B

D - Light dove calclutite -
occasional calcite-filled borings

1-2'

A

E - Darker dove calclutite
mottled with numerous white
patches representing borings. Top
with arborescent silicified fillings
of borings. Patches of pellets.

This is good typical Copper
limestone as described by Suger 1920

(49)

June 5

On N side quarry 6' of Dar. overlying
the Renss. bed. The top has
much pyrite and is covered by
an $1\frac{1}{2}$ " of green clay or shale.
The roof of the two additions on the
W side of the quarry is just about
the base of the Mississippian. Bed
above Renss. thickness 9' thin — on
N side of it is 6' thick, at tunnels
it is 8-10' thick. The beds overlying
it are thinner-bedded, cobbly or
modular with thin shale partings.
These are the beds that produced the
few graptolites found.

Saw a loose piece of earth ls
with small favosites of alveolar
type. Top of Dar with breccia in
places; chocolate brown.

Bed above Renss. is granular
in places, but is mostly dove
ranging from light to chocolate

6693 — Hall & Riley Cr. is 3.75 miles N
on US 65, from junction with
US 40 = Interstate 70.

Several pictures

Picture of side on new road
cgl. ss. & dark shale. Cut about 6 miles
N of Sedalia, Mo.

6694 curve on old US 65 4 miles N of
junction old US 65 & Co. H H & H, about $6\frac{3}{4}$ miles N

(32)

of Sedalia.

June 6

Looking up Clifton City D

3796

6694 Collection made between 5' + 10' above a green clay marking top of Devonian. Saw Oriskany? on N side of town at junction Mo 750 + 4805

6695 - Section on and beside a small stream 2.7 miles on Co. B south of Clifton City, Mo. This stream leads to my old locality. I bend on old road.

About 10' of copper lithology is overlain by 6-7' of cross-bedded lime sand. The outcrop underlies Clinton and in 57 paces downstream from Co. B. My old locality is 150 paces downstream.

Old Road appears first 1.5 miles S of RR in Clifton City and then again 2.9 miles S of RR in CC on Cooper Co highway BB. At 2.7 miles my locality can be reached by going 150 paces downstream in gully. From second intersection by BB & old road my locality is about 60 yards N on road. Sand exposures of Clinton can appear on old road.

72.35 - Junction BB & Mo 135
72.12 - RR on S side of Clifton City = 0.115

70.95 - Old road = 1.25
69.6 - Stream + BB crossing = 2.6 miles
69.5 - Old road = 2.7 miles
my locality is about 2.5 to 2.6 miles S of CC

(57)

Longicella found near
top along branch on
east side stream

at my locality I make about
8' of strongly cross-bedded
lime sand crowded with
brachiopods but specimens
mostly poor. My locality
should be near the old road
and stream crossing. Then I
have it. Small *Athyra* reminds
me of the Snyder Creek ones.
I make about 10' of Mincola
type rock under the calcarenite.
I found *Raathyrus* at almost
the top of the calcarenite.
Longicella occurs within 2 or
3' of the top.

June 7

Fortune Branch

6696

a = ss at
base
b = ls
c = chert
near top

NE corner Casaville □.
No trouble finding site of locality
but could not match the
section given. Sandwiched
between dolomite below and
the Mississippian above are
about 6' of chert, banded,
mottled and smooth light
gray conchoidal. Basal part
is clearly a ss and has
some fish fragments. We could
not differentiate a distinct limestone
layer at the top. Much of the ls.
is in the form of stinkstone or

(52)

black calcite.

June 8

6698 — At crossing of Ill. 127 and
Cany Creek is outcrop of Clear Creek
on W side Ill 127 under the
Dutch Creek. This is at 1.1 miles
N of junction Ill. 146 & 127. Also
on east side of bridge over
Cany Creek, in south bank of
Creek appears a good outcrop
of Clear Creek with much
gray ls.

6698a

Exactly 4.1 miles N of Ill 146-127
on 127 is an outcrop of Onondaga
12' of gray crystalline limestone
light gray when fresh, often
white & marble like when
weathered. Weathered surface
with much crinoidal debris.

SE $\frac{1}{4}$ SW $\frac{1}{4}$ 27-115-2 W, Alto Pass \square , Ill.

At Clear Creek, which is only $\frac{1}{4}$ mile
from previous outcrop - old bridge
and new bridge cross at same
place. Outcrop of St. Laurent
in bank on east side of
bridge.

6699 - about
SW $\frac{1}{4}$ SE $\frac{1}{4}$ 5 - 36N-9E,
3/4 mi N of Boardman
Road
53

June 9

6699 - N of Boardman school
New road now goes over Bearvans
ss. about $\frac{3}{4}$ mi. N of old
school. This outcrop is $2\frac{1}{4}$ miles
on State road T west of
junction with State road N which
is about 0.3 mile S of Ozora.

66100 - Miss. bryozoa - on US
61-67, 1.3 miles W of Chapman, Mo.

66101 - Barnhart fm., on US 61-67
2 miles south of Barnhart, Mo.

Roads S of Ozora have been
greatly changed. That leading
N of the Boardman school is
now defunct but a large area
of Bearvans is exposed south
of State Rd T and in the woods
on the north side. The Grand
Tower is exposed at the
east end of the exposure.
The State Rd T crosses the old
Boardman school road at
approximately the old outcrop
of the Bearvans.

Altensburg Q.

(4) June 10 = Union School
66102 - Weathered chert (breccia) near
junction of 2 streams, about 50
yards upstream. Above the
junction & 20' above stream is a
thick massive brownish gray
limestone from which we were
unable to take fossils. This ledge
is 15' thick. Pacing started at
junction of stream. This side stream
has only short float some of
which is deeply weathered and
evidently in place. This weathered
stuff also appears under the ledge
above. The 15' ledge is much
fractured.

10 paces from S_j (stream junction)
about 5' hard brown-gray ls with
Paracyclas and Medborghia

63 paces - About 2' of ls in
stream bed. N40°W 28°NE
a little chert. About 2' thick
135 Stream & road in contact

158 - a foot - a foot of granular
ls with large Paracyclas &
fish spine

230 - begins long outcrop
in bank - N52W 26°NE
Stream here N10°W and distance

(55)

between top & bottom of outcrop
is 110'.

Top of outcrop at 274 rock
dark brown gray, irregular
fracture. Fossils hard to get
small to medium, chonetes and
a radiospira. Small masses
of light chert. At bottom at 240 paces
Quasensis = 66102 F

310 paces another outcrop
like that at 230-274. This outcrop
is SD congl. - stream N25W.
Strike N65W 32° NE. All told
about 30' of rocks at a guess
The lowest part of the lower
half of this cut abounds in
small Chonetes, Leptæna and
an occasional Spirifer (formacula)
= 66102 A.

The top of the lower half
contains the same chonetes,
and Leptæna but we also
collected Microcyclus = 66102 B

The upper half at the top
has Schizophoria, a small
Spirifer, Phacops & Strophodont
= 66102 C

370 - Small outcrop of about 5'

56

Thickness, Hard brownish gray
Real small Chonetes, Spinf. Like
top of preceding. Rensselaeria = 66102 E

445 Road & stream cross.

About $\frac{1}{4}$ mile West of School
stream & road cross, stream
on west side road. At this
point which marks a sharp
bend in the stream, Rensselaeria
granular, cherty with many
corals including Hesperonema

Along the point west of stream
crossing big blocks containing
much Bulbopora and large Atrypa
appear beside the road.

70 paces downstream. The limestone
is crinoidal, granular and
replete with cup corals and has
many chert nodules. The stream
here is about parallel to the
strike, about $N 50^{\circ} W$. The dip
here is almost vertical and about
8' thickness is shown.

= 66102 D. These beds are
375 feet west of Union School
in the stream bed.

The road past the school has
been rerouted somewhat.

Blocks on road, that contain large
Atrypa are granular crinoidal

66102 G - large Atrypa from
Upper granular beds.

57

have *Hexagonaria*, *cypraea* & *Aulopora*. The latter in abundance. These certainly belong to the upper granular beds at the school.

Photo of Union school F 8 at $\frac{1}{125}$ & $\frac{1}{250}$

Rensselaeria bed is exactly $\frac{1}{4}$ mile SW of Union school in stream on west side of road.

66103

Glen beside Rd S of Ridge School.

220 paces from old road crossing gully covered.

First rock about 10 paces of rotted ls. at 221 is a 2' coral bed above this is about 5' shaly ls. followed by 5-10' of cherty ls. N 78° W. 23° N. Outcrop occupies about 40 paces

58

June 11

66104 - Hillside facing SE, 1/2 mile SE of Wittenburg. Very top of hill with blocks of cherty granular to fine grained limestone, often with shaly fracture. Some shale in float. Blocks at top of hill approximately in place. *Tropidoleptus* common, *Microspirifer* and princeps type of *Aviculapecten* common. This is clearly the St. Laurent.

66105 - Section (conjecture) in gullies along ridge SW of Wittenburg

First rock seen dips strongly to the west, is a leached limestone and is either a slump or a sharp fold. Under this is hard shaly ls. that flattens out and then dips east. I think the east dipping beds are the same as those dipping west and we have a small anticline. The shale makes a covered interval which represents about 20' of rock. The shale is overlain by an irregular bed of limestone, in places containing thick beds of chert which have a small *Chonetes* & *Microspirifer*. The limestone abounds in corals and in Stromatopora. *Bellerophon* is also

66105 is in slope 200' from sharp bend in private road.

59

seen in one large slab. The coral bed and associated beds may be about 5' thick. Above the coral bed about 10' appears a foot of shaly limestone. Flout to the top of hill has limestone with *Mediopirifer* and a punky reddish sandstone. The limestone (coral) forms a bench about 30' below the top of the hill at about 470' El.

shaly limestone
covered
coral bed 1-2'
Tropidoleptus 3'
Shale
& cherty ls. 20' ±

Coral bed itself is 1-2'. Under are 3' gray finely granular ls. with *Tropidoleptus*.

What I call coral bed is crowded with digitate favosites, & cup corals. The 3' bed under the coral bed also contains corals but they are more scattered.

Coral bed = 66105 A. bed with *Tropidoleptus* and scattered corals = 66105 B. Chert is unevenly distributed among the two limestone beds.

This bed and associated layers strongly suggest the coral bed under shale & cherty ls seen at 66103 just north of the entrance to the ravine beside the road up the hill to Ridge School. The Wittenberg occurrence is thus low in the St. Laurent rather than high and there is no *Trigla* here

Location of A20 from St. Hy C
SW to Ridge school

$81.75 - 82.85 = 1.1 \text{ miles}, 226^\circ$

from this point on new road
will take one to A20. Rock
exposed in stream for 200
yards down from road to stream
crossing all the *Spirifer lucasensis*
or associated beds.

to lower curve $83.2 = 1.45 \text{ miles}$

60

66106 Dully 0.4 mile E of Ridge School
A - 3 feet of sandy shale & shaly ls.

B. about 8' of hard massive ls with many corals numerous, many small branching type. *Porolithothamnium*, *Undulobolus* same coral bed as 66105 and 66103

C - covered - guessimate of 16-20' One patch of shaly ls. seen.

D - About 7' of shaly limestone with much chert. Has *Mucrospirifer*, *Tentaculites*, and small *Chonetes*. Looks like cherty beds above coral bed.

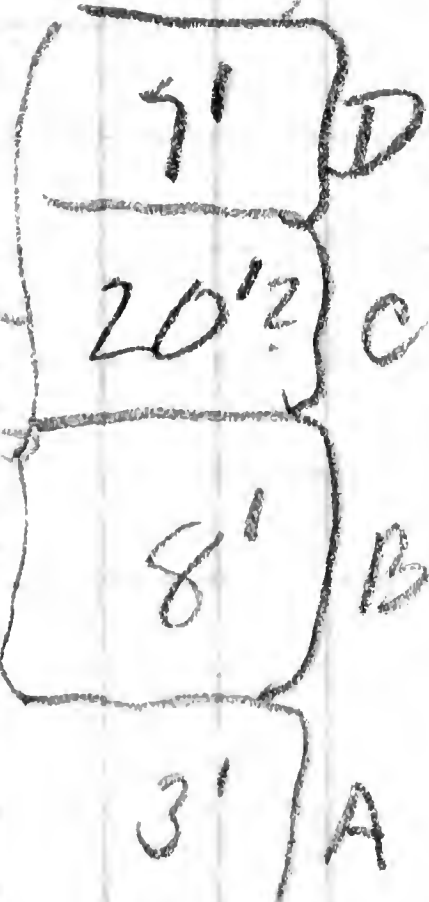
Above D the steep slope is covered with Mississippian chert & some granular ls. The outcrop is 92' below the road which is about 610 making the elevation of the outcrop about 518' el.

D = 66106 A
B = 66106 B

Covered
Miss
chert &
ls
float

92' vertical

Stratigraphic



61

June 12

66107 - Beauvais ss on S side
Little Saline Creek east of
Boorman School.

66108 - About 10-12' of bluish
hard ls abounding in *Schizophoria*
& small corals. belongs in upper
part of Grand Tower. Good
exposures along road 2.6 miles
W of junction State / N+J at bend
of road

66109 St. Laurent Creek

A
66109C

SS at base strikes N 75° W is
nearly vertical & extends 18 paces = 45'
thick 21 paces covered = 50'

B

21 paces to next outcrop which is
30 paces long = 75' Thick. At 30' up
is a bed of cherty sugar ss 3' thick
followed by a foot of ls with much
chert. Beds at top cherty ls.

56
62

25 paces covered = 62'

66109A

C Outcrop is 20' Thick - 6' below
top and from there to 12' below
top rock is packed with *Sp*
mucronatus & *Chonetes coronatus*
Lower beds with large *Chonetes*

62

23' covered

D - 12' of hard limestone
contains a few scattered corals
& Microspirifer
Saw no black shale, in creek bed
32 paces covered = 80

E - 65' of Thin-bedded limestone
becoming hard & massive at
top. Contains much chert in
lower part in beds up to 1 1/2'
Thick - Saw no fossils Miss.?

F = 15' of massive crinoidal ls. =
Mississippian

66109B D - is the last of the Hamilton
beds

66109C Small *Athyris* in top of
ss.

63

64